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ABSTRACT

A study was conducted to describe instructors' attitudes toward and use of assessment methods in postsecondary technical and occupational classrooms and laboratories. Data were collected through a questionnaire mailed to a random sample (n=318) of all postsecondary technical and occupational instructors in Ohio. Results indicated that instructors tended to use information from paper-and-pencil tests most often in making instructional decisions, followed by information from performance assessments and informal observations. Postsecondary instructors tended rarely to use information from standardized tests, portfolios and essay methods. Instructors neither agreed or disagreed that they faced potential constraints while conducting assessment activities. More than four-fifths of the instructors reported a positive attitude toward assessment and more than one-half considered themselves very competent in assessment. Marketing instructors used portfolios more often in making instructional decisions. Two program areas (marketing and business) were the primary users of essay methods. Instructors' attitudes toward assessment were found to explain 11 percent of the variation in use of performance assessment and 4 percent in use of portfolios. The perceived competency level of instructions in assessment contributed to about 3 percent of the variation in use of portfolios. (Contains 14 references.) (KC)

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TECHNICAL AND OCCUPATIONAL EDUCATION INSTRUCTORS' PERCEIVED USE OF STUDENT ASSESSMENT INFORMATION IN MAKING EDUCATIONAL DECISIONS

A Paper Presented at the Annual Meeting of the
American Vocational Education Research Association
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by

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Abstract

This descriptive study was designed to describe instructors' use of assessment methods in post-secondary technical and occupational classrooms and laboratories. Data were collected from a random sample of all post-secondary technical and occupational instructors within the State of Ohio. Results indicated instructors tend to use information from paper and pencil test the most in making instructional decisions. Instructors used information from performance assessments the next most often, which was followed by informal observations. Post-secondary instructors tended to rarely use information from standardized tests, portfolios, and essay methods. Instructors neither agreed or disagreed that they faced potential constraints while conducting assessment activities. More than four-fifths of the instructors reported a positive attitude toward assessment and more than one-half considered themselves to be very competent in assessment. It was found that instructors within the program area of marketing accounted for more than six percent of the variation of using portfolios in making instructional decisions. Two program areas (marketing and business occupations) each accounted for three percent of the variation in the use of essay methods in making instructional decisions. Instructors' attitudes toward assessment was found to explain 11% of the variation in instructors use of performance assessment and four percent of the variation in instructors' use of portfolios. The perceived competency level of instructors in assessment contributed about three percent of the variation in instructors' use of portfolios.

TECHNICAL AND OCCUPATIONAL EDUCATION INSTRUCTORS' PERCEIVED USE OF STUDENT ASSESSMENT INFORMATION IN MAKING EDUCATIONAL DECISIONS

Since the 1970s the public, elected officials, state agencies, and the media have become more interested in education. This interest has been due in part to the achievement of our students, which does not compare well with counterparts in other countries. Hudgins (1993) stated that although costs have been rising for higher education, student achievement has flattened out and sometimes even declined. Many individuals in post-secondary education paid little attention to the debate caused by this report and assumed that this was a problem of K-12 education. The public, however, did not see the separation between post-secondary and K-12 education and looked at this as one educational system (Hudgins, 1993). Because of this lack of separation, there has been an increased interest and sometimes demand for educational institutions to show greater accountability to suggest how much and what students are learning at all levels of education. Post-secondary institutions have not shown to legislators, or to the public, a strong and obvious correlation between investment and return (Hudgins).

Colleges and universities know how smart their students were when these students arrived on their campuses, but they do not know very much about what they have learned while they were there (Bok, 1992). Because there has been little investigation on how well post-secondary instructors teach or how much their students learn, deciding the effectiveness of their programs has been difficult. This presents a problem when trying to convince the public that education is a top priority of these institutions. Since this focus has not shifted, colleges and universities have continued to be vulnerable to the attacks on their curricula, faculty, tuition, and other issues (Bok, 1992).

Statement of the Problem

How technical and occupational instructors use assessment information in the classroom and laboratory and whether its use is effective, can play a major role in enhancing and documenting both instruction and learning. The literature revealed very little about assessment practices and their use by post-secondary instructors. Recent research conducted on the quality and effectiveness of general-education instructor training in measurement and assessment has implied that these individuals may not be acquiring the appropriate skills necessary to use assessment skills effectively. If this is true for general education instructors, what are the assessment skills needed by technical and occupational instructors? Information on the assessment skills needed and the use of assessment information by technical and occupational education instructors is not available.

Purpose and Objectives of the Study

The purpose of this study was to describe assessment activities, problems, attitudes, and perceptions of Ohio post-secondary technical and occupational education instructors. The specific objectives of this study were to:

1. Describe Ohio post-secondary technical and occupational education instructors in terms of the following demographic characteristics: age, sex, related work experience, teaching experience, program area taught, and educational level.
2. Describe Ohio post-secondary technical and occupational education instructors' perceptions of the use of student assessment information in making instructional decisions.
3. Describe how Ohio post-secondary technical and occupational education instructors face potential constraints while conducting assessment activities.

4. Describe Ohio post-secondary technical and occupational education instructors' attitudes toward the assessment process.
5. Describe Ohio post-secondary technical and occupational education instructors' perceptions of their level of competence in the assessment process.
6. Examine the relationships between Ohio post-secondary technical and occupational education instructors' use of assessment information and:
   a. selected demographic characteristics,
   b. perceived level of competence in the assessment process,
   c. their attitudes toward assessment, and
   d. constraints to the assessment processes.
7. Determine the proportion of variance in Ohio post-secondary technical and occupational education instructors' perceived use of assessment information in instructional decision-making that can be explained by the independent variables of attitudes toward assessment, competence in the assessment process, constraints to the assessment process, and selected demographic characteristics.

METHODOLOGY

The methodology used to conduct the research is described in this section. The methodology is organized and presented in the following sections: (a) research design, (b) population and sampling, (c) instrumentation, (d) data collection, and (e) data analysis.

Research Design

This descriptive-correlational study was designed to explore and describe the assessment practices of Ohio post-secondary technical and occupational instructors. The nature and strength of relationships between assessment use and instructor attitudes, instructor competence in assessment, constraints to assessment, and instructor characteristics were examined. The dependent variable in this study was instructor use of student assessment information in making instructional decisions. Independent variables included instructor attitudes toward assessment, instructors' competence in assessment, and potential constraints faced by instructors while conducting assessment activities.

Population and Sampling

The target population for this study was all full-time post-secondary technical instructors in the State of Ohio during the spring of 1996. A random sample of 318 individuals was drawn from the population as recommended by Krejcie and Morgan (1970) with a 95% confidence level of obtaining a representative sample of the population.

Instrumentation

The five-part survey used for this research was adapted from a survey used in a similar research study (Kershaw, 1993). The dependent variable, instructor use of assessment information, was measured in Part I of the instrument. Instructors were asked to indicate the extent to which they use information from six types of assessment methods in addressing nine different instructional decisions. The six types of assessment methods used in the study included: objective paper and pencil methods, standardized test scores, performance assessments, informal observations, portfolios, and essay methods. The participants in this study were asked to indicate the extent to which they use results from each of the six assessment methods in making nine different types of

instructional decisions. The instructional decisions addressed were: planning for instruction, diagnosing student weaknesses, monitoring student progress toward course objectives, motivating students to learn, evaluating the effectiveness of instruction, evaluating the instructional materials used, encouraging students to assess their own work, assigning grades, and grouping students for instructional activities. A five-point Likert-type scale ranging from "never use" to "always use" was used.

Part II of the questionnaire was designed for measuring the first independent variable, competence in assessment. The respondents were asked to indicate the perceived level of their competence in the assessment process. The competency statements used for this section were based upon "Standards for Teacher Competence in Educational Assessment of Students" (American Federation of Teachers, National Council on Measurement in Education, & National Education Association, 1990). A five-point Likert-type scale was used which ranged from "not competent" to "extremely competent."

Instructors' attitudes toward assessment were measured in Part III of the instrument using a semantic differential scale. This scale consisted of eight bi-polar adjectives that represent the concept of assessment. A seven-point scale was used for each pair of adjectives. Respondents were asked to place a check mark between the adjectives at the point that best indicated how they would describe their attitude toward the overall assessment process.

Part IV of the instrument was designed to measure the perceived constraints that instructors may face during their assessment activities. A five-point Likert-type scale was used that ranged from "strongly disagree" to "strongly agree". Participants were asked to indicate their level of agreement or disagreement with nine constraint statements.

The personal characteristics of each instructor were measured in Part V of the questionnaire. Respondents were asked to provide personal information regarding the characteristics of sex, teaching experience, related work experience, teaching area, level of education and present age.

A panel of experts was used to establish content and face validity for the survey instrument. The panel of experts was used to ensure that the instrument had clearly defined statements and questions, made suggested changes to statements and questions, offered suggestions for the addition or deletion of statements and questions, and made comments on the format and general appearance of the survey instrument.

After the instrument was revised, it was pilot tested for reliability using a group of respondents from a community college outside the State of Ohio. A test-retest method was also used to test the reliability of the instrument over a period of time. The time interval between the test and retest was two weeks. The results from test #1 and test #2 were compared for percent agreement with values that ranged from .85 to .92 for each item. Measures of internal consistency were calculated from the data obtained from the first test of the test/retest method. Cronsbach's Alpha ranged from .77 to .94 for each of the six sections of Part I, .85 for the 21 summed items in Part II, .81 for the semantic differential in Part III, and .54 for the sum of the nine items in Part IV.

Data Collection

The data for this study were collected by a mail questionnaire. This data collection consisted of an initial mailing of questionnaires being sent out and approximately one week later a post card reminder was sent to all participants in the study. This post card reminded participants of the importance of the study and the importance of each response. It further thanked the respondents and asked the non-respondents to take the time to complete and return the questionnaire. Approximately two weeks after the first mailing a second packet was mailed to all non-respondents. The final correspondence with the participants included a second post card reminder sent to all non-respondents approximately one week after the second mailing was sent. Questionnaires were

received from 170 instructors that represented an overall response rate of 53%. Of the 170 surveys returned, 93% (158) were useable. This represented an overall useable response rate of slightly less than 50%.

A 10% random sample of non-respondents was selected and contacted by telephone. However, to obtain 10% responses, it was necessary to contact more than 20% of the non-respondents. Differences between non-respondents and respondents on each part of the questionnaire were compared using a t-test. The significance level of alpha for this test was set at .05. No significant differences were found between the two groups for each part of the questionnaire. However, an over sampling of the non-respondents was conducted to obtain this information, therefore the results of this study cannot be generalized beyond the respondents.

Data Analysis

Descriptive statistics provided measures of central tendency and variability for organizing, summarizing and analyzing differences and likenesses between groups. Pearson's r coefficient, point bi-serial correlation coefficients, and Cramer's V were used to summarize the magnitude and direction of the relationship between variables. The Davis (1971) conventions were used to describe the measures of association (Table 1).

Table 1
Conventions Used to Describe Measures of Association

Coefficient	Description
.70 or higher	Very Strong Association
.50 to .69	Substantial Association
.30 to .49	Moderate Association
.10 to .29	Low Association
.01 to .09	Negligible Association

Source: Davis, (1971)

Semi-partial multiple regression was used to calculate the unique relationships between independent variable sets and the dependent variable, use of assessment information in making instructional decisions. The stepwise entry method of independent variables into the multiple regression models was used based on the exploratory nature of the study, the fact that interval, ordinal, and nominal variables were investigated, and the lack of theory to guide the order in which variables were entered into the equation.

FINDINGS

This section reports findings related to the following: (a) characteristics of the respondents, (b) instructors' use of assessment information, (c) instructors' perceived competence in assessment, (d) instructors' attitudes toward assessment, (e) instructor perceived constraints to assessment, (f) relationships between dependent and independent variables, and (g) multiple regression models.

Demographic and Background Characteristics of the Sample

This study examined six demographic and background characteristics for the sample that included age, sex, years of teaching experience, years of work experience, program area, and level of education. From the variable of age it was found that 44.2% of the sample was in an age group that ranged from 40-49 years (Table 2). Slightly more than 27% of the respondents were between 50-59,

and 16.2% were between 30-39 years of age. Instructors ranged in age from 25 to 67 with a mean age of 47.03. Gender data revealed that females comprised 57% and males 43% of the sample (Table 2).

Table 2

Age and Sex of Instructors (n=158)

Characteristics	f	%	
Age			
Under 30	3	1.9	
30 - 39	25	16.2	Mean = 47.03
40 - 49	68	44.2	SD = 9.4
50 - 59	42	27.3	
60 and over	16	10.4	
Total	154[a]	100.0	
Sex			
Female	90	57.0	
Male	68	43.0	
Total	158	100.0	

[a]Information was missing for four respondents on age.

Years of teaching experience ranged from one to 38 years with the mean being 15 years of experience (Table 3). The largest group of instructors (23.1%) taught for 16-20 years while the smallest group (2.6%) taught for more than 31 years. In terms of related work experience, 12.3% had 16-20 years of related work experience before or concurrent to teaching, 18.8% had 11-15 years, and 24.7% had 6-10 years (Table 3). Slightly more than 34% had 0-5 years of related work experience.

Table 3

Instructors' Years of Related Work and Teaching Experience (n = 158)

Characteristics	f	%	
Years of Related Work Experience			
0-5	53	34.4	
6-10	38	24.7	
11-15	29	18.8	Mean = 10.96
16-20	19	12.3	SD = 7.92
21-25	5	3.3	
26-30	6	3.9	
31-35	4	2.6	
Total	154[a]	100.0	
Years of Teaching Experience			
1-5	20	12.8	
6-10	32	20.5	Mean = 15.49
11-15	27	17.3	SD = 8.34
16-20	36	23.1	
21-25	19	12.2	
26-30	18	11.5	
31 or more	4	2.6	
Total	156[b]	100.0	

[a]Information was not available from four respondents on years of related work experience.
[b]Information was not available from two respondents on years of teaching experience.

Health occupations comprised the largest group in the study with 38.5% of all instructors (Table 4). Business occupations also consisted of a large portion of instructors within the study (26.3%), and was followed by engineering at 12.8%. Agriculture, family and consumer sciences and human services contributed less than two percent each. Four-fifths of the respondents had completed a graduate degree (80%) (Table 5). Slightly less than 10% had completed some graduate work, and less than six percent had a bachelors degree.

Table 4

Program Area of Instructors (n=158)

Program Area	f	%
Agriculture	3	1.9
Business Occupations	41	26.3
Marketing	5	3.2
Family and Consumer Sciences	2	1.3
Trade and Industrial	10	6.4
Health Occupations	60	38.5
Engineering	20	12.8
Human Services	2	1.3
Other	13	8.3
Total	156[a]	100.0

[a]Information was not available from two respondents.

Table 5

Instructors Level of Education (n=158)

Level of Education	f	%
Associates Degree	5	3.2
Bachelors Degree	9	5.8
Some Graduate Work	15	9.7
Masters Degree	106	68.4
Doctorate	18	11.6
Other	2	1.3
Total	155[a]	100.0

[a]Information was not available from three respondents.

Use of Assessment Information

Table 6 displays the results of instructors' use of assessment information. Instructors rated assessment information provided from objective paper and pencil methods (M=3.92) as more useful in making instructional decisions than information from the other five assessment methods. Performance assessment was rated second highest by instructors for providing information in making decisions (M=3.78). Information derived from informal observations was rated third (M=3.64), essay items were fourth (M=2.49), and standardized test scores rated fifth (M=1.90). Portfolios provided information deemed of the least use by instructor in making educational decisions (M=1.78).

Table 6

Use of Assessment Information Generated From Six Assessment Methods (n=158)

Decision Areas[a]	Objective Items			Standardized Test Scores			Performance Assessment			Informal Observation			Portfolios			Essay Items		
	Mode	%	(n)	Mode	%	(n)	Mode	%	(n)	Mode	%	(n)	Mode	%	(n)	Mode	%	(n)
1.	4	42.4	156	1	48.1	151	4	36.1	154	4	36.7	154	1	57.0	151	2	25.9	154
2.	4	43.7	151	1	47.5	149	4	34.2	148	4	44.3	148	1	53.8	146	2	26.6	150
3.	5	52.5	149	1	54.4	147	5	32.3	150	4	32.9	147	1	56.3	147	2	27.8	149
4.	[b]	31.6	152	1	57.6	148	5	36.7	150	5	40.5	150	1	55.7	149	1	27.2	149
5.	5	47.5	151	1	50.6	148	5	35.4	147	4	36.7	148	1	58.9	147	1	27.2	149
6.	5	36.7	148	1	53.2	145	4	33.5	145	4	33.5	145	1	54.4	144	1	31.0	147
7.	5	36.7	149	1	54.4	145	4	32.3	146	4	32.3	146	1	51.3	145	1	25.3	146
8.	5	67.7	152	1	71.5	147	5	21.5	146	5	21.5	146	1	57.0	148	3	24.1	149
9.	1	42.8	145	1	72.2	144	4	24.1	144	4	24.1	144	1	72.2	144	1	63.3	145
Overall Mean			**3.92**			**1.90**			**3.78**			**3.64**			**1.78**			**2.49**
Overall SD			**.70**			**1.01**			**.76**			**.71**			**.97**			**1.06**

[a]Decision Areas:

1. Planning for instruction
2. Diagnosing student weaknesses
3. Monitoring student progress toward course objectives
4. Motivating students to learn
5. Evaluating effectiveness of instruction
6. Evaluating instructional material
7. Encouraging students to assess their own work
8. Assigning grades
9. Grouping students for instructional activities

[b]Bimodal item with modes of 4 and 5

Potential Constraints to Assessment

Table 7 depicts the summed data gathered from instructors on potential constraints they faced while conducting assessment activities. Over one-half (55.1%) of the instructors neither agreed nor disagreed that they faced potential constraints while conducting their assessment activities. Slightly more than 42% of instructors agreed that they faced potential constraints when conducting assessment activities, while slightly more than one percent disagreed potential constraints affected their assessment activities.

Table 7

Overall Constraints to Assessment Scores (n = 158)

Scale Value	Constraint Score	f	%	
Strongly Disagree	9 - 13	0	.00	
Disagree	14 - 22	2	1.27	
Neither Agree or Disagree	23 - 31	87	55.05	Mean = 30.82
Agree	32 - 40	67	42.41	SD = 3.97
Strongly Agree	41 - 45	2	1.27	

Note. Missing data was recoded to the mean.

Instructors' Attitude Toward Assessment

Attitudinal measure of post-secondary instructors was made by summing the eight responses on the semantic differential scale. Post-secondary instructors reported having a more positive (81.1%) than negative (5%) attitude toward assessments (Table 8). The remaining instructors (13.9%) in this study reported being neutral in their attitude toward assessment.

Table 8

Instructors' Summated Attitude Scores Towards Assessment (n = 158)

Summed Attitude Scores	f	%	
8 - 11	0	0.0	
12 - 19	1	0.6	
20 - 27	7	4.4	Mean = 42.65
28 - 35	22	13.9	SD = 8.19
36 - 43	47	29.8	
44 - 52	62	39.2	
53 - 56	19	12.1	

Note. Missing data was recoded to the mean.

Perceived Level of Competence in Assessment

A measure of perceived competence in assessment was calculated by summing post-secondary instructor responses to 21 competency statements (Table 9). The summed scores across the 21 statements indicated that slightly less than six percent of technical and occupational instructors considered themselves to be extremely competent in the overall assessment process,

51.9% to be very competent, and 42.4% to be moderately competent. None of these instructors considered themselves to be slightly competent or not competent in assessment.

Table 9

Summed Instructor Competency Scores (n = 158)

Scale Value	Summed Score	f	%	
Not Competent	21 - 31	0	0.0	
Slightly Competent	32 - 52	0	0.0	Mean = 76.5
Moderately Competent	53 - 73	67	42.4	SD = 10.76
Very Competent	74 - 94	82	51.9	
Extremely Competent	95 - 105	9	5.7	

Note. Missing data was recoded to the mean.

Relationships Between Dependent and Independent Variables

Potential constraints faced by instructors when conducting assessment activities was found to have a low association with the use of standardized test scores (r=.25) and performance assessment (r=.20) (Table 10). Attitude toward assessment had a moderate positive association (r=.33) with the use of performance assessment. Program area had a substantial association (r_{cv}=.58) with the use of essays as an assessment method, and competence in assessment had a low positive association (r=.18) with instructor use of information from portfolios as an assessment method.

Table 10

Intercorrelations Between Independent Variables and Assessment Methods (n=158)

	Intercorrelations													
	X2	X3	X4	X5	X6	X7	X8	X9	Y1	Y2	Y3	Y4	Y5	Y6
X1 Competence	*.17	*.21	-.13	*.24	.59	*.19	.13	-.09	-.01	.05	.14	.13	*.18	.05
X2 Attitude	1.00	*.31	-.01	-.07	.50	.02	-.08	*-.20	-.01	.12	*.33	.05	.15	-.03
X3 Constraints		1.00	-.04	-.06	.36	.09	-.02	*-.16	.07	*.25	*.20	-.01	-.15	-.11
X4 Yrs Work Exper			1.00	*-.19	.38	-.11	*.24	.12	-.01	.14	-.07	-.07	.05	.04
X5 Yrs Teaching				1.00	*.52	*.25	*.63	.09	.09	-.14	-.04	-.06	.01	.09
X6 Program Area[a]					1.00	*.29	*.55	*.52	.47	.49	.49	.51	.50	*.58
X7 Education Level[c]						1.00	*.20	*.37	-.01	-.08	.04	-.01	-.03	.03
X8 Age							1.00	.09	.09	-.10	-.06	-.04	-.10	.02
X9 Sex[b]								1.00	.03	-.14	-.14	.05	-.07	.05
Y1 Objective									1.00	*.22	.06	*.18	.04	.08
Y2 Standardized										1.00	.09	-.03	*.17	.06
Y3 Performance											1.00	*.48	*.31	.06
Y4 Informal Observations												1.00	*.24	.14
Y5 Portfolio													1.00	*.28
Y6 Essay														1.00

Note. Unless otherwise noted reported coefficients are Pearson product-moment correlations. Relationships among dichotomous and multichotomous nominal variables are reported as Cramer's V correlations. Relationships among dichotomous nominal and interval variables are reported as Point-biserial correlations. Relationships among ordinal and interval variables are reported as Spearman rank-correlations. Relationships among multichotomous nominal and ordinal variables are reported as Cramer's V correlations. Relationships among multichotomous nominal and interval variables are reported as Cramer's V correlations.

[a]Multichotomous nominal variable.

[b]Dichotomous nominal variable.

[c]Ordinal variable.

* P<.05

Regression of Dependent Variable Upon the Independent Variable

It was found that instructors within different program areas placed more weight upon the use of portfolios as an assessment tool (Table 11). The program area of marketing accounted for more than six percent of the variation of using portfolios in making instructional decisions. Two program areas (marketing and business occupations) each accounted for slightly more than three percent of the variation in the use of essay methods in .naking instructional decisions (Table 12).

Table 11

Semi-Partial Regression of Use of Portfolios On All Independent Variables (n = 158)(Stepwise Entry)

Variables	sR^2	b	t	p
Marketing (Program Area)[a]	.065	1.53	3.49	<.001
Potential Constraints	.029	-.581	-3.30	<.001
Attitude	.043	.184	2.38	.018
Competence	.033	.367	2.46	.015
(Constant)	1.42			

Standard error = .935
R^2 = .17
Adjusted R^2 = .15
For model: F = 7.37, p <.001
[a]Multichotomous variables were dummy coded: Marketing = 1 and Other = 0

Table 12

Semi-Partial Regression of Use of Essay Methods On All Independent Variables (n = 158)(Stepwise Entry)

Variables	sR^2	b	t	p
Marketing (Program Area)[a]	.033	1.26	2.51	.013
Business Occupations (Program Area)[a]	.031	.448	2.23	.027
(Constant)	2.35			

Standard error = 1.077
R^2 = .064
Adjusted R^2 = .052
For model: F = 5.08, p <.001
[a]Multichotomous variables were dummy coded: Marketing = 1 and Other = 0. Business Occupations = 1 and Other = 0

Instructors' attitudes toward assessment had a moderate positive association (r=.33) with the use of performance assessment and was found to explain 11.2% of the variation in instructors use of the assessment method (Table 13). Attitude toward assessment was also found to explain 4.3% of the variation in instructors' use of portfolios as an assessment method (Table 11).

Table 13

Semi-Partial Regression of Use of Performance Assessment On All Independent Variables (n = 158)(Stepwise Entry)

Variable	sR^2	b	t	p
Attitude	.112	.248	4.33	<.001
(Constant)	2.45			

Standard error = .742
R^2 = .112
Adjusted R^2 = .106
For model: F = 18.73, p <.001

Potential constraints faced by instructors during the assessment process explained 2.8% of the variation in the instructor's use of standardized test scores while the program area of Health Occupations explained 9.2% of the variation (Table 14). There was not a statistically significant association between attitude toward assessment and use of portfolios, yet when it was entered into a regression model with three other variables (marketing, constraints, competence) it explained 4.3% of the variation in instructors' use of portfolios as an assessment method (Table 11).

Table 14

Semi-Partial Regression of Use of Standardized Test Scores On All Independent Variables (n = 158)(Stepwise Entry)

Variables	sR^2	b	t	p
Health Occupations (Program Area*)	.092	.405	3.14	<.001
Potential Constraints	.028	.555	2.19	.03
(Constant)	.329			

Standard error = 1.01
R^2 = .120
Adjusted R^2 = .108
For model: F = 10.11, p <.001
*Multichotomous variables were dummy coded: Health = 1 and Other = 0

Competency level was found to contribute only 3.3% of the variation in instructors' use of portfolios (Table 11). While competence accounted for a small percent of variation in instructors' use of portfolios as an assessment method, it did not explain a significant amount of variance in the use of objective paper and pencil methods, standardized test scores, performance assessments, informal observations, and essay assessment methods.

CONCLUSIONS AND RECOMMENDATIONS

This descriptive study was designed to describe instructors' use of assessment methods in post-secondary technical and occupational classrooms and laboratories. The study further investigated the relationships between use of student assessment information and characteristics of post-secondary technical and occupational instructors in the State of Ohio.

Conclusions

This section contains the conclusions reached based upon the findings from this study. As a reminder, an attempt was made to control for non-response error by comparing non-respondents to respondent. Over sampling of the non-respondents was necessary to obtain a sufficient number of respondents to make a comparison using a t-test. Therefore, the results of this study cannot be generalized to the population.

Use of Assessment Information

Respondents reported using objective paper and pencil methods the most for student assessments. Since technical and occupational instructors teach subjects that involve many student performance activities, it was surprising that objective paper and pencil methods of assessment were used more than performance assessments. In previous research, Kershaw (1993) found that secondary vocational teachers tended to place more emphasis upon the use of performance assessments than on other assessment methods.

Standardized test scores were found of little use in making instructional decisions by the respondents. This tends to indicates that instructors use of standardized testing continues to be little by instructors in making educational decisions.

Portfolios were found the least used source of student assessment information for decision-making. Although this assessment method continues to be promoted as an effective assessment method within education, instructors who responded tended not to use the information generated from portfolios.

Potential Constraints to Assessment

Post-secondary technical and occupational instructors within this study were split between agreeing and neither agreeing nor disagreeing regarding the potential constraints to the assessment process. The results of this study were similar to those findings reported by Gullickson (1984). Kershaw (1993) also found similar results in his study of secondary vocational teachers. In addition to the predominately neutral findings, other studies found that limited time for planning was the constraint that received consistent higher levels of agreement.

Instructors' Attitude Toward Assessment

For the most part, the respondents had positive attitudes toward assessment and agreed with those reported by Green (1990) where attitudes of both preservice and experienced teachers toward classroom assessment were positive. Additionally, Kershaw (1993) found that secondary teachers tended to have a positive attitude toward assessment.

Perceived Level of Competence in Assessment

Technical and occupational educators in this study reported that they perceived themselves to be moderately to extremely competent in the assessment process. These results were in line with findings from Gullickson and Hopkins (1987) that described teachers as being comfortable in their knowledge and abilities related to the assessment process. Dorr-Bremme (1983) also concluded that teachers perceived their use of assessment techniques as accurately measuring the effects of their instruction.

Results from this study, in the area of the competency level of instructors in assessment, conflicted with other research. Previous research found that teachers were lacking the necessary skills in assessment selection, development, and use (Newman & Stallings, 1982; Carter, 1984; Hills, 1991). In addition, Gullickson and Hopkins (1987) and Schafer and Lissitz (1987) supported the position that preservice courses have not been adequate in developing the level of desired assessment skills in teachers.

From previous research, there has been evidence to suggest that teachers may tend to exaggerate their level of competence in assessment when data is obtained in a self-reported manner. Marso and Pigge (1989) found that teachers, principals, and supervisors do not agree on the proficiency level of teachers' test construction and test planning proficiencies. Teachers tended to rate themselves as much more proficient in assessment than did their supervisors or principals. Findings reported by Green and Williams (1989) indicated that teachers with less training in tests and measurements perceived themselves to be more knowledgeable about interpreting standardized test scores than teachers with more training in this area. If the instructors' perceived competence levels can be interpreted as being exaggerated, then the findings that 42.4% of instructors reported a moderate level of competence in assessment becomes more important. The higher levels of perceived competence, the small significant relationship between perceived competence and the use of portfolios, and the past research that identified the deficiencies of teacher assessment skills suggest the potential need for the upgrading of technical and occupational education instructor competence in assessment practices.

Relationships Between Dependent and Independent Variables

Program areas had a substantial association with the use of essays as an assessment method. This finding tended to indicate that respondents from marketing and business occupations used essay methods more than their counterparts in other technical and occupational programs. Competence in assessment had a low positive association with instructor use of information from portfolios as an assessment method indicating that respondents who perceived themselves as more competent in assessment tended to be more likely to use portfolios for assessment.

A moderate relationship ($r=.33$) was present between attitude and use of performance assessment, which conflicts with some previous research. Green and Stager (1986) concluded that the relationship between attitude and assessment use was of no practical importance. Kershaw (1993) also concluded that the relationship between attitude and assessment use was of little importance. The results of this study indicated that although attitude may not be important in the use of all the different types of assessment methods, it was of some importance when using performance assessment.

Regression of Dependent Variable Upon the Independent Variables

This study failed to demonstrate that instructor characteristics accounted for much of the variation in their use of assessment information. Age, sex, years of teaching experience, years of

related work experience, and educational level did not account for a significant proportion of the variation in the respondents' use of any assessment method.

Though there was not a statistically significant association between program area and standardized test scores, it was found that the health occupations program area explained nine percent of the variation in the instructors' use of standardized test scores. This may have been due to the use of standardized test scores as an entry and exit requirement for students in many health occupation programs.

Program area was found to have a substantial association with the use of essay methods for making educational decisions. Two program areas (marketing and business occupations) each accounted for three percent of the variation in the use of essay methods in making instructional decisions. This indicated that essay methods may be used more by instructors in marketing and business occupation programs than instructors in other program areas.

This study was unable to support the claim that potential constraints faced by instructors while conducting assessment activities played a major part in explaining variation in instructor use of assessment methods. The use of two assessment methods (portfolios and performance assessments) were shown to be related to constraints faced by instructors while conducting assessment activities, but a very small proportion of variance was explained by these constraints.

Competence accounted for a small percent of variation in instructors' use of portfolios as an assessment method, however, it did not explain a significant amount of variance in the use of objective paper and pencil methods, standardized test scores, performance assessments, informal observations, and essay assessment methods. These findings were slightly different from what Kershaw (1993) found. Kershaw found that competence in assessment contributed a significant, yet small portion of variance in teachers' use of objective paper and pencil methods, use of performance assessment and use of informal observation.

Recommendations

Recommendations from the results of this study will be made for practice and future research. Based upon the review of literature, the findings of this study, and the previous conclusions, the following recommendations are proposed.

Recommendations for Research

1. Because this study was able to explain only a small amount of variance in post-secondary technical and occupational instructors' use of assessment methods, it is recommended that each of these methods be studied independently. Also, it is suggested that qualitative research be conducted on each of the assessment methods to help identify other variables that may contribute additional variance in explaining the use of assessment information in making educational decisions. Open-ended responses could be collected regarding instructor attitude toward assessment, competence in assessment, and potential constraints in the assessment process.
2. Since attitude toward the overall process contributed little to understanding the use of assessment by instructors, it is recommended that future research relate this attitude toward the specific assessment methods. What are instructors' attitudes toward objective paper and pencil assessment methods, standardized testing, performance assessment, informal observations, portfolios, and essay methods? Information gathered on the attitudes toward each assessment method may explain more about the use of these methods by educators.
3. Individual competence in assessment was rated rather high by instructors in this study, yet it only explained a small proportion of variation in the use of assessment methods. It is recommended that future research investigate the level of competence of the instructors in

each assessment method. Information generated on the level of competence with each assessment method may find different levels of competence within each assessment method. Research such as this may also identify strengths and weaknesses that instructors have related to the assessment process. This data would be valuable to in-service and pre-service teacher education programs in updating their courses and workshops.

4. Instructors rated their level of competence on the high side in this study, yet it explained little of the variation in the use of assessment methods. This may indicate that instructors overstated their competence level. For future research on the level of instructors' competence, it is suggested that self-reported competence levels be compared with observed instructors' competence level. In addition, since competence in certain areas has been found to be related to education within that area, it is recommended that research be undertaken to collect information at the different colleges and universities to learn how many of the courses in the pre-service technical and occupational education curriculum concentrate on assessment methods and what assessment methods are emphasized within these courses.
5. To provide technical and occupational instructors with ideas on how the different types of assessment can be used within their specific programs, it is recommended that research be conducted to investigate and collect examples of how instructors (within the different program areas) use the different assessment methods. If instructors can see specific ways that these assessment methods are used, they may be better able to carry out these assessment techniques within their individual programs.
6. Recent emphasis on the development of national skill standards will have an impact upon assessment in technical and occupational programs. Future research should investigate how and whether these standards are being used as an assessment tool.
7. It is recommended that the findings from this research be compared with what is being taught in pre-service and in-service teacher education programs. It may be that instructors are only assessing students with methods with which they are familiar.
8. The general population has started calling for public educational institutions to be more accountable. One measure of accountability is the level of proficiency of the students. Students tested with a variety of assessment methods will provide more evidence to the public that these students are learning what they are supposed to learn. Consequently, instructors need to be able to use different kinds of assessment methods.

<u>Recommendations for Practice</u>

1. Findings from this study indicate that certain demographic characteristics have little bearing on the use of different assessment methods. This suggests that either assessment practices change very little as an instructor gains instructional and educational experiences or that instructor assessment strategies and preferences developed early in their careers are changed very little over a period of time. Therefore, it is recommended that pre-service and in-service educators provide a curriculum that includes different assessment methods and how these methods can be used in the different program areas. Post-secondary educational institutions should provide some means of recognizing those instructors that use different assessment methods within their individualized programs.
2. Post-secondary technical and occupational instructors within this study were not using standardized test results. Such scores may be helpful to instructors in determining strengths and weakness of their students. Instructors within the different program areas may need further education about how they may use standardized test scores to enhance their programs and student achievement.

3. It is recommended that technical and occupational instructors continue to use performance assessments within their programs. This assessment method continues to an appropriate method for measuring learning performance-based environments.
4. Data gathered from this study indicated that the different types of assessment methods are not evenly used. This could be due to the lack of understanding by instructors of other assessment techniques. The different assessment methods may be prime candidates for topics of in-service opportunities for instructors.
5. Student achievement levels can vary by the different ways they are assessed, so it is important students are provided the opportunity to demonstrate their knowledge and skill level in a variety of ways. Within the field of education, certain assessment methods tend to be used more than other assessment methods. Instructors should determine how and whether these assessment methods can be used within their program areas, but they should not shift all of their assessment activities to just one method.
6. There is a saying that "we teach how we are taught". If this is true about teaching, then it may also be appropriate for assessment. University faculty, in pre-service teacher education programs, should use different types of assessment methods within their classes to serve as examples for their students.

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